



Z.333

MAN-MACHINE LANGUAGE

METHODOLOGY FOR THE SPECIFICATION OF THE MAN-MACHINE INTERFACE - TOOLS AND METHODS

ITU-T Recommendation Z.333

(Extract from the *Blue Book*)

NOTES

1 ITU-T Recommendation Z.333 was published in Fascicle X.7 of the *Blue Book*. This file is an extract from the *Blue Book*. While the presentation and layout of the text might be slightly different from the *Blue Book* version, the contents of the file are identical to the *Blue Book* version and copyright conditions remain unchanged (see below).

2 In this Recommendation, the expression “Administration” is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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**METHODOLOGY FOR THE SPECIFICATION OF THE MAN-MACHINE INTERFACE
TOOLS AND METHODS**

1 Introduction

This Recommendation presents the tools and methods that support the general working procedure described in Recommendation Z.332. Taken together, Recommendations Z.332 and Z.333 constitute the methodology for the specification of the man-machine interface.

2 List of tools and methods¹⁾

The following tools and methods are necessary to support the methodology for the specification of MML functions:

- guidelines,
- modelling,
- MML function decomposition method,
- information structure metalanguage,
- procedure description method,
- formal representation of the syntactic structure of each input and output.

3 Description of available tools

3.1 Guidelines

3.1.1 For phase 1

Determine for each job:

- the purpose of the job;
- what the system is supposed to do;
- what the user is supposed to do;
- the complexity of the job from the users' perspective (see Note);
- the frequency of the job (see Note);
- at which level in the network hierarchy the job is supposed to be performed (exchange, OMC);
- safety aspects.

Note – The following assumptions have been taken to better identify what is meant for “frequency” and “complexity” of a job.

3.1.1.1 Frequency

Low:

- if the job is supposed to be performed weekly or at longer intervals.

Medium:

- if the job is supposed to be performed daily.

¹⁾ The tools and methods may be improved on the basis of user experience leading to additions or revisions.

High:

- if the job is supposed to be performed several times in a day.

3.1.1.2 Complexity

Low:

- low number of parameters (in general sense) – max 0 : 3;
- most information associated with these parameters are not compound;
- there is no semantic relationship among different parameters and parameter values.

Medium:

- the number of parameters is greater than 4 but less than 6-8;
- much information associated to these parameters is compound;
- there is no semantic relationship among parameters and/or parameter values.

High:

- there are many parameters;
- most information associated to these parameters is compound;
- there are semantic relationships among parameters and/or parameter values.

3.1.2 For Phase 4

No specific guidelines are provided for phase 2.

3.1.3 For phase 3

Three main categories of outputs can be identified within the MML function semantics specification, namely:

- 1) Response outputs inside the dialogue to the operator inputs.
- 2) Result outputs whose end-user is supposed to be the operator (e.g. results of reporting or interrogation functions).
- 3) Result outputs whose end-user is not assumed to be the operator (e.g. data collected for further elaborations).

The partitioning of the output media to be used and its component information entities should not be pursued in detail, with the following guidelines:

- Output media and output characteristics to support the first category of output (output inside dialogue) will not appear in the diagrams.
- Output media and output characteristics to support the second category will be as shown in Figure 1/Z.333.

It is also recognized that the lower level of detail, whose definition will depend on the individual Administration's needs, could in general include the information shown in Figure 2/Z.333.

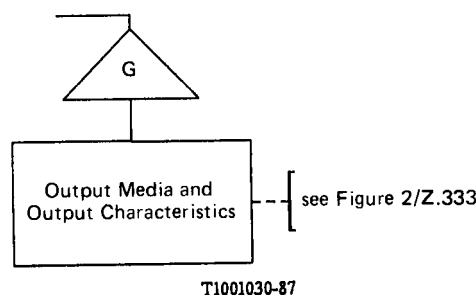


FIGURE 1/Z.333

**Output media and output characteristics to support outputs
whose end-user is supposed to be the operator**

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Output media to support outputs belonging to the third category will be shown if possible in the same way as the previous point.

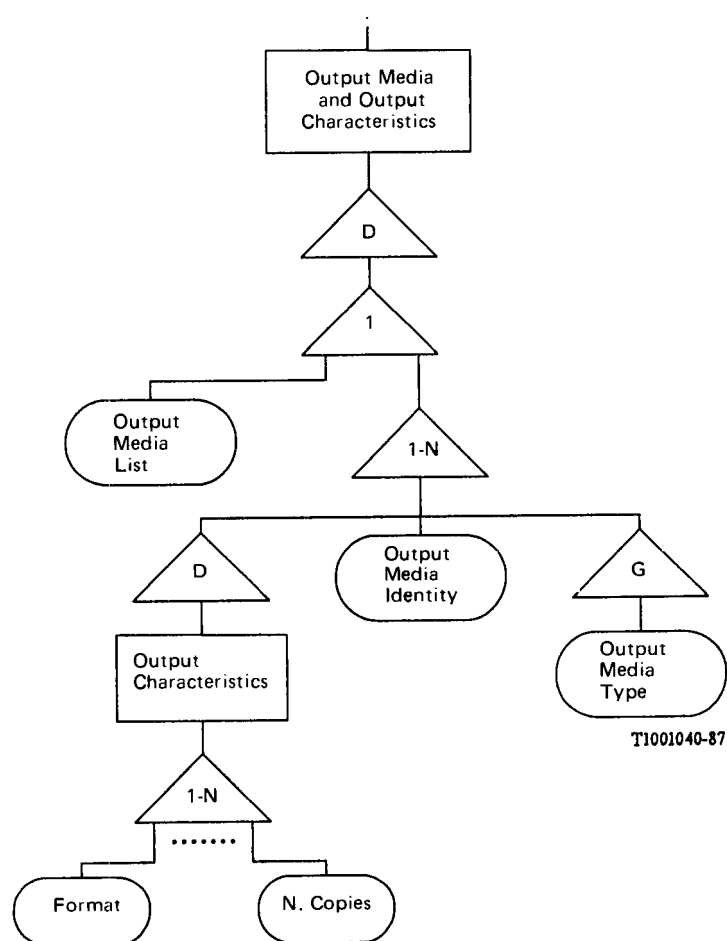


FIGURE 2/Z.333

Output media and output characteristics diagrams

3.1.4 For phase 4

To define individual menus and forms, follow the guidelines for the design of menus and forms as defined in Recommendation Z.323.

To define the individual inputs and outputs:

- 1) Consider what the system is supposed to do.
- 2) Select options in the function information structure.
- 3) Define the information to be represented by the command code or equivalent.
- 4) Define the information to be represented by the parameters and, if appropriate, their order.
- 5) For each parameter, when appropriate, identify the:
 - range of values,
 - default values,
 - information to be automatically supplied by the system.
- 6) Define the response outputs within dialogue, the interaction request outputs and outputs outside dialogue when applicable after considering the various mode operating sequences and the users' reactions to the outputs.

- 7) Define the associated syntactic structure.
- 8) Select terms and abbreviations for inputs and outputs.

3.1.5 *For phase 5*

- 1) Define a preliminary operational procedure in functional terms.
- 2) Finalize operational procedures.

3.1.6 *General guidelines*

- 1) Determine that the MML functions support the jobs to be performed.
- 2) It will be necessary to consider:
 - human factor aspects;
 - adequate allocation of authorities;
 - adequate definition of responsibility;
 - training of the user.

3.1.7 *Terminology harmonization guidelines for Phases 1-3*

To harmonize terminology:

- 1) Utilize existing CCITT vocabulary.
- 2) Select appropriate terms included in the general functional terminology (Appendix I).
- 3) Derive specific terms and their definitions pertinent to the functional area involved based on the following considerations:
 - common usage;
 - specificity;
 - translatability.

3.2 *Modelling*

Modelling involves the use of description text and/or figures drawn either with the support of formal symbology and rules (formal modelling) or without such rules (informal modelling).

3.2.1 *The need for models*

A tool available is the construction of informal models of those parts of telecommunications systems which have been selected for MML control. Also the organization of the Administration could be subject to modelling. Several models could apply when defining a job or an MML function. The use of models has the following advantages.